Patented July 11, 1950 2,514,637

UNITED STATES PATENT OFFICE

2,514,637

CEMENT COMPOSITIONS

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No Drawing. Application April 29, 1949, Serial No. 90,540

4 Claims. (Cl. 260—29.6)

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This invention relates to new and useful improvements in cement compositions and is a continuation in part of my application Serial No. 622,935, filed October 17, 1945, now abandoned.

Cement or concrete laying or surfacing requires a base of suitable roughness and undercuts in order to securely lock or anchor the cement or concrete thereto applied. When laying cement or concrete on a surface that is relatively smooth, as for instance, a stone, stone composition, cement or concrete, or other masonry surface, it is necessary to precondition that surface by suitably roughening the same. This roughening may be carried out by mechanical means such as chiseling or chipping the surface in a manner to provide the requisite roughness with a maximum of undercuts. This procedure is unsatisfactory, does not give in all cases the desired degree of bond and is uneconomical and time consuming. The results are particularly unsatisfactory when the cement or concrete laid on the base surface possesses different characteristics of heat expansion and cold contraction from that of the base material.

The difficulties involved in obtaining a satisfactory bond between a base surface and the cement or concrete to be laid thereon are particularly pronounced in patch or repair work or resurfacing of a previously existing cement or concrete surface. In those cases, the preconditioning of the old cement or concrete base in the requisite manner for satisfactory bonding of the newly to be laid cement or concrete is difficult, and in the majority of cases will not give satisfactory results. This is especially true where the job is subject and exposed to the exigencies of climatic and weather influences.

Attempts have been made to overcome some of the difficulties of the surface preparation involving the mechanical roughening and undercutting of the base surface by the use of a primer which itself possesses some bonding characteristics with respect to the base surface and after application would set on the base with an exposed surface exhibiting a certain amount of roughness. However, such primer applications are in the majority of cases not too successful as either the bond between primer and bases or the bond between superimposed cement or concrete and primer or both of these prove of insufficient anchorage for the laid cement or concrete to the base onto which it is applied.

Attempts have also been made to compound asphalt into cement compositions for the purpose of thereby obtaining a suitable patching

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compound. However, such compositions are also not self-bonding and require a suitable asphalt primer. These compositions are furthermore objectionable due to the dark color imparted to the mixture by the asphalt.

One object of the invention is a cement composition which is inherently substantially self-bonding to any substantially self-sustaining base surface to which it is applied without the necessity of preconditioning the base surface or the use of a primer thereon.

A further object of the invention is such a cement composition inherently so self-bonding to an extent that temperature changes differentially affecting the material of the base and the concrete composition in accordance with the invention laid onto the same will not sever the bond.

A still further object of the invention is such a cement composition specifically adapted for patching or resurfacing of worn concrete surfaces without the necessity of pre-roughening the existing concrete surface or applying a primer thereto.

These and still further objects of the invention will appear from the following description.

The Portland cement composition in accordance with the invention essentially comprises a Portland cement composition and intimately dispersed therethrough an aqueous colloidal dispersion of cumaron resin, said aqueous dispersion not containing substantially in excess of 50% by weight of the cumaron resin.

For best results, the amount of cumaron resin in the cement composition in accordance with my invention should be such that there is present about one part by dry weight of cumaron resin for about every 15–50 and preferably about every 40–50 parts by dry weight of Portland cement.

Aqueous colloidal dispersions of cumaron resin frequently referred to as cumaron emulsions may be prepared in accordance with well known procedures and are commercially available with cumaron resins of varying melting points. The melting point of the cumaron resin when used in accordance with the invention determines to some extent the final characteristics of the Portland cement composition after it has been laid and set. The lower the relative melting point of the cumaron resin the relatively softer and more resilient will be the ultimate cement composition after setting. Such relatively low melting point cumaron resin cement composition, however, does not possess the same compressive